

REMARKS

The final Office Action mailed on July 2, 2003 ("Office Action"), rejected all of the claims (1-19) of this application. Claim 7 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,822,539 to van Hoff ("van Hoff"). Claims 1-6 and 8-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over van Hoff in view of U.S. Patent No. 6,289,362 to Van Der Meer ("Van Der Meer"). This amendment amends independent Claims 1, 7, and 16 so as to more clearly point out and distinctly claim the subject matter applicants regard as their invention. Various dependent claims have been amended to maintain language consistency. Applicants respectfully submit that the rejection of amended Claims 1-19 is in error, should be withdrawn, and this application allowed.

Prior to discussing the reasons why applicants believe that all of the claims in this application are allowable, a brief discussion of the present invention, followed by a brief discussion of the cited and applied references, is presented. The following discussions of applicants' invention and the cited and applied references are not provided to define the scope or interpretation of any of the claims of this application. Instead, these discussions are provided to help the United States Patent and Trademark Office better appreciate important claim distinctions discussed thereafter.

Summary of the Invention

The present invention addresses one of the shortcomings of previous forms of providing content by providing the ability to scalably associate annotations with a vast number of content sources. Each annotation is represented by an object with a number of properties. One of those properties is a document identifier. The document identifier identifies the content source (e.g., document, audio file, movie file, etc.) with which the annotation is associated. By including a document identifier property in the annotation object, it is possible to associate an annotation with a particular content source (and not associate it with others). The annotations are stored on at least one annotation server of a multiple tier hierarchical annotation server system wherein each higher tier server includes more information than lower tier servers.

In one implementation of the invention, a document identifier for a content source is sent to a tier I server; the tier I provides a lightweight response that indicates whether one or more annotations are associated with the document identifier. If one or more annotations are associated with the document identifier and, thus, the content source, the tier I server provides a reference to a tier II server. The tier II server (or servers) maintains additional information about

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the annotations associated with the document identifier. The reference to the tier II server is used to obtain the additional annotation information. The additional annotation information includes a reference to a tier III server that stores the annotation object. Obviously, embodiments of the invention can include more or less than three tiers of servers, two being the minimum.

As can be seen from the above description, the present invention provides multiple tiers of servers that progressively provide more specific information about an annotation (or annotations) associated with a particular content source. It will further be appreciated by those of ordinary skill in the art and others that a multiple tier annotation server system is readily scalable because frequently accessed lower tiers of servers provide minimal information, while less frequently accessed higher tiers provide more information. In the example described above, a tier I server can point to a plurality of tier II servers for more detailed information about an annotation and each tier II server in turn can point to a tier III server for retrieval of the annotation, if desired. Such a system distributes both the bandwidth processing and memory loads associated with obtaining progressively more detailed information.

Summary of the Cited and Applied References

The van Hoff Reference (U.S. Patent No. 5,822,539)

Van Hoff provides a client-side system and method for inserting hypertext links (hyperlinks) to annotations into documents. Each document is viewable on a client computer having a browser configured to request and receive documents over the network.

The hyperlinks of van Hoff are inserted into a document by an annotation proxy, which in Van Hoff is a software procedure on a single computer (either a client or a separate computer) configured to insert hypertext links to annotations in a document. The criteria for identifying where hyperlinks to annotations should be added to a document are matching a group of characters in the document to a group of character strings in one or more dictionaries of cross-references. The hyperlinks are added to the document regardless of any document identifier. Neither the hyperlink, nor the annotation associated with the hyperlink, includes a document identifier, i.e., an identifier that identifies the document into which the hyperlink is inserted. The annotation proxy then relays the annotated document to the browser, which ultimately displays the merged document.

Nowhere does van Hoff teach multi-tiered servers of the type contemplated by the present invention. All annotations are stored on a client or similar device, not on multi-tier

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servers wherein lower ordered tiers include document identifiers but not annotations or more information about annotations.

The Van Der Meer Reference (U.S. Patent No. 6,289,362)

Van Der Meer provides a system and method for presenting an ordered set of network object links to documents. The network object links are called annotated universal addresses ("AUAs"). The AUAs are presentable by a browser, much like a list of bookmarks. The AUAs are maintained in an AUA database. The contents of the AUA database are presented to a user within a presentation context. Van Der Meer purportedly allows the user to select a different presentation context without affecting the contents of the AUA database. One type of presentation context is organized like a diary or agenda.

Van Der Meer uses the word "annotation" to describe the configuration data that describes the properties of an AUA, such as expiration data, re-exportation data, link data, suggested section in which to store AUA, natural size of the object, description of the object, privacy level, type of object, etc. (See Col. 6, p. 58-Col. 7, l. 14.) These properties (configuration data) are not the same as the document annotations of either van Hoff or the present invention. Annotation, as used in both van Hoff and the present invention, describes information that adds to the understanding of a related content source, e.g., a document. Annotation does not describe or relate to configuration data type properties of a content source, e.g., a document. While van Hoff does employ hyperlinks to annotations and the present invention does store information about annotations (which could employ configuration data), annotations is used in an entirely different sense than in Van Der Meer. In applicants' view, Van Der Meer misuses the word annotation; see the copy of page 87 of *Webster's Third New Dictionary*, copyright 1993, attached to the response to the first Office Action in this application.

The system of Van Der Meer comprises an AUA database server, a presentation context server, an owner system, and content providers. Each content provider includes descriptions of presentable objects and AUAs that identify the location of the objects. The content providers also include "annotations" for controlling aspects of the objects. The AUA database and presentation context server maintain the AUAs in a per user AUA database. The AUA database allows an owner to access the AUAs for presentation. Since the content providers include the AUA annotations, the content providers have control over certain aspects of the objects as they are presented to the owner and any other user.

Nowhere does Van Der Meer teach or suggest the present invention. Van Der Meer provides a way of presenting network object links. The network object links or AUAs of

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Van Der Meer are objects with configuration data that describe features of the objects, called "annotations." The annotations of Van Der Meer are not objects--rather, they are configuration data that describe properties of the network object links (Fig. 3 and Col. 6, l. 58-Col. 7, l. 14). The annotations associated with Van Der Meer AUAs are not annotation objects. Rather Van Der Meer's annotations are configuration data that "indicate how to handle some aspect of the object information 132 or the universal address 305" (Col. 6, ll. 59-60).

The Claims Distinguished

The Office Action has failed to show and the applicants are unable to find where any of the cited and applied references, either alone or in combination, disclose, teach or suggest the subject matter of the claimed invention. Among other differences, none of the cited and applied references teaches, discloses or suggests storing annotations on at least one server of a multiple tier hierarchical annotation system wherein each higher order tier includes more annotation information than lower order tiers. Neither van Hoff nor Van Der Meer provide easily scalable systems, much less easily scalable systems employing multi-tier hierarchical annotation servers. As discussed more fully below, Claims 1-19 clearly recite scalable methods or computer readable media not taught or even remotely suggested by van Hoff or Van Der Meer, taken alone or in combination.

Rejection of Claim 7 Under 35 U.S.C. § 102(b)

As noted above, van Hoff teaches storing all annotation information on a single device--either on a client device or a separate annotation proxy server. In contrast, Claim 7, as amended, reads as follows:

7. A scalable method of retrieving an annotation associated with a content source, the method comprising:

sending a document identifier associated with a content source to a tier I server, said tier I server being part of a multiple tier hierarchical annotation server system that also includes a tier II server, said tier I server storing minimal information regarding annotations associated with said content source, said minimal information including the existence of annotations associated with said content source and the identification of said tier II server if said annotations exist; and

if an annotation is associated with the document identifier, retrieving a reference from said tier I server to said tier II server, said tier II server maintaining additional information regarding the annotation associated with the document identifier.

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The multiple tiers of the method recited in Claim 7 provide an easily scalable way of retrieving annotation information. In contrast, the single device annotation proxy in van Hoff is not easily scalable. More importantly, van Hoff also fails to teach a tier I server that stores minimal information regarding annotations associated with a content source and responds in the manner recited in Claim 7. Claim 7 recites that the tier I server stores minimal information including the existence of annotations associated with a content source and the identity of a tier II server if an annotation exists. If an indication is associated with a particular document identifier, additional information about the annotation associated with the document identifier is retrieved from the tier II server. The additional information may or may not include the annotation. Providing indications of annotation association and tier II server identification allows tier I servers to be lightweights suitable for quickly responding to many requests for indications of whether annotations are associated with a document identifier. Lightweight tier I servers enhance the scalability of a multiple tier hierarchical annotation system since the tier I servers function as filters that control access to higher tier servers that store more annotation information. In contrast, the annotation proxy of van Hoff uses computationally expensive character matching algorithms running on a single device to conduct full document searches to determine if links to annotations should be embedded in a document by an annotation proxy server. The annotation proxy servers of van Hoff are clearly different from the lightweight tier I servers of Claim 7.

As noted above, Claim 7 also recites a "tier II server maintaining additional information about the annotation associated with the document identifier." Van Hoff contains no teaching or suggestion of a tier II server let alone a tier II server for maintaining additional information about an annotation associated with a document identifier. The Office Action appears to equate van Hoff's information server to the tier II server recited in Claim 7. Applicants disagree. The information server of van Hoff is not a tier II server of the type recited in Claim 7. Van Hoff's information server holds document information, not additional annotation information. There is no teaching or suggestion in van Hoff that van Hoff's information server has additional information about annotations. Rather, the opposite is true. Van Hoff's information servers provide documents to an annotation proxy server. The annotation proxy server in turn adds hyperlinks to annotations to the supplied document. A van Hoff system is not easily scalable to handle large quantities of documents and/or annotations. More importantly, van Hoff does not disclose the method recited in Claim 7. Thus, applicants submit that Claim 7 and all the claims dependent therefrom (Claims 8-15) are clearly allowable.

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Rejection of Claims 1-6 and 8-19 Under 35 U.S.C. § 103(a)

As amended, independent Claims 1 and 16 read as follows:

1. A scalable method of storing an annotation associated with a content source, the method comprising:

representing an annotation as an object having a plurality of properties wherein one of the plurality of properties is a document identifier, the document identifier identifying the content source with which the annotation is associated; and

storing the annotation and information about the annotation accessible using the document identifier on the servers of a multiple tier hierarchical annotation server system *wherein the information about the annotation but not the annotation is stored on a lower tier server and the annotation is stored on a higher tier server.* [Emphasis added.]

16. A computer readable medium comprising computer executable steps for executing a scalable method for storing an annotation associated with a content source, the method comprising:

representing an annotation as an object having a plurality of properties wherein one of the plurality of properties is a document identifier, said document identifier identifying the content source with which the annotation is associated; and

storing said annotation and information about the annotation accessible using the document identifier on the servers of a multiple tier hierarchical annotation server system *wherein the information about the annotation but not the annotation is stored on a lower tier server and the annotation is stored on a higher order server.* [Emphasis added.]

Claims 1 and 16 both recite storing an annotation that is associated with a content source using a document identifier property. Both claims also recite that the annotation is represented as an object having a plurality of properties, one of which is the document identifier. While both van Hoff and Van Der Meer arguably disclose document identifiers, neither teaches, discloses, or suggests associating an annotation with a content source using a document identifier, the annotation represented as an object having a plurality of properties, one of which is the document identifier.

Van Hoff teaches using a document identifier to retrieve a document and an annotation proxy that matches character patterns to determine which links to annotations to embed in a document. (Col. 5, lines 37-55.) Van Hoff does not teach associating an annotation with a content source using a document identifier.

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Van Der Meer also fails to teach, disclose, or suggest associating an annotation with a content source using a document identifier, the annotation represented as an object having plurality of properties, one of which is the document identifier. As noted above, the annotations of Van Der Meer are not objects—rather, they are configuration data associated with a network object link called an AUA. As neither van Hoff nor Van Der Meer teaches, discloses, or even suggests the foregoing elements of Claims 1 and 16, either alone or in combination, Claims 1 and 16 are submitted to be allowable.

Claims 1 and 16 also recite storing the annotation and information about the annotation accessible using the document identifier on separate servers of a multiple tier hierarchical annotation server system. Information about the annotation is stored on a lower order tier and the annotation is stored on a higher order tier. As generally discussed above with respect to Claim 7, this subject matter is not taught or even remotely suggested by either van Hoff or Van Der Meer, taken alone or in combination. Thus, Claims 1 and 16 are submitted to be allowable for this further reason.

Applicants further submit that dependent Claims 2-6 and 17-19 are allowable for reasons in addition to the reasons why independent Claims 1 and 16 are allowable. For example, applicants have been unable to find where any of the cited and applied references discusses or even remotely suggests "defining one or more type specific properties unique to the annotation" as recited in Claim 5. Neither van Hoff nor Van Der Meer teaches, discloses or suggests type specific properties, let alone type specific properties unique to an annotation. The suggestion in the Office Action that an annotation identifier is a "type identifier" is submitted to be incorrect. As pointed out in the specification (p. 11, ll. 3-4), property types identify the type of annotation. Because neither van Hoff nor Van Der Meer teaches or suggests type specific properties, applicants submit that these references taken either alone or in combination would not have rendered the subject matter of Claim 5 obvious to persons of ordinary skill in the art at the time this invention was made. Thus, Claim 5 is submitted to be allowable for this reason as well.

Claims 8-15 depend from allowable Claim 7 and are therefore allowable for the same reasons that Claim 7 is allowable. Claims 8-15 are also allowable for additional reasons. Many of these claims include further recitations not taught, disclosed, or even suggested by either van Hoff or Van Der Meer, alone or in combination. For example, Claim 10 recites a tier III server. More specifically, as amended, Claim 10 reads as follows:

10. The method of Claim 7, wherein said multiple tier hierarchical annotation server system also includes a tier III server and further comprising:

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sending a request to the tier II server for said additional information regarding the annotation associated with the content source; and

receiving a response from the tier II server, said response including a reference to said tier III server, said tier III server storing the annotation associated with the document identifier.

The Office Action is correct in noting that van Hoff has no tier III server. However, the assertion that the presentation context server of Van Der Meer is a tier III server is submitted to be incorrect. Van Der Meer's presentation context server has no annotations. Van Hoff's annotations are all associated with an annotation proxy server. Applicants submit that one of ordinary skill in the art would have not been motivated to combine a presentation context server (having no annotations) with the annotation proxy of van Hoff to form a tier III server. Such a combination would not enhance the ability of either the presentation server to present contexts or the annotation proxy to annotate. Accordingly, it is abundantly clear that the tier III server recited in Claim 10 is not taught or even remotely suggested by Van Der Meer or van Hoff, alone or in combination. Thus, applicants submit that Claim 10, as amended, and all the claims dependent therefrom (Claims 11-15) are allowable for reasons in addition to the reasons why Claim 7, the claim from which Claim 10 depends, is allowable.

Claim 13, which depends from Claim 10, adds further recitations not taught or suggested by van Hoff or Van Der Meer. More specifically, Claim 13 recites details of the functional operation of a tier III server not taught or suggested by the cited and applied references. In particular, there is no teaching or suggestion of sending to a tier III server an annotation identifier that identifies an "annotation associated with the content source" in any of the cited and applied references. Van Hoff stores all its annotations on a client device (or a separate annotation proxy server device). Thus, there is no need and, thus, no motivation, in van Hoff to send an annotation identifier anywhere, let alone to a tier III server. Nor does Van Der Meer teach or suggest this subject matter. Further, neither reference teaches or suggests "receiving a third response from the tier III server, wherein the third response comprises a body for the annotation identified by the annotation identifier," particularly when this subject matter is considered in combination with the other recitations of Claim 13 and the recitations of the claim from which Claim 13 depends. Accordingly, applicants submit that Claim 13 (and its dependent Claims 14-15) are allowable for reasons in addition to the reasons why the claims from which Claim 13 depends are allowable.

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CONCLUSION

In view of the foregoing amendments and remarks, respectfully applicants submit that the present application is now in condition for allowance. Reconsideration and reexamination of this application, as amended, allowance of the rejected claims, and passage of the application to issue at an early date are respectfully solicited. If the Examiner has any questions or comments concerning this application, the Examiner is invited to contact the applicants' undersigned attorney at the number below.

Respectfully submitted,

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I hereby certify that this correspondence is being transmitted via facsimile to the U.S. Patent and Trademark Office, Group Art Unit 2176, Examiner Almari Romero, at facsimile number 703.746.7238 on September 15, 2003.

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